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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/754,914	01/08/2004	Mark R. Hennings	09064.0027USU1	8589
23552	7590	07/21/2005	EXAMINER	
MERCHANT & GOULD PC P.O. BOX 2903 MINNEAPOLIS, MN 55402-0903			WARREN, DAVID S	
			ART UNIT	PAPER NUMBER
			2837	

DATE MAILED: 07/21/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/754,914

Applicant(s)

HENNINGS ET AL.

Examiner

David S. Warren

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 January 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 January 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>1/19/05</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 7 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In claim 7, it is not understood how the melodic generator receives harmonic sequence data. Nor is it understood how the structure of claim 7 can generate a melody based on both the DNA or harmonic data. Clarification is required.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1 – 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dunn et al. (Inflections: Music from DNA. 1992 – 1995) in view of Long (GB 2,350,469 A). Regarding claims 1, 8, 14 – 19, and 23, Dunn discloses the use of a DNA transcriber for generating music (i.e., Dunn's DNA interpreter is synonymous with transcriber), in accordance with amino acid "codons" (see last paragraph of page one and first paragraph of page two). While Dunn's written disclosure is silent to distinguishing between melodic and harmonic generation, it is clear, that by listening to

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Dunn's (and Bridge's) compositions (available on the Internet) that both harmony and melody are "transcribed" from the DNA sequences. However, Long clearly discloses the use of sounding both chords (page 5, lines 14 – 16) and arpeggios (page 9, lines 13 – 16) in accordance with amino acids. The Examiner maintains that both chords and arpeggios create "harmony." Therefore, one of ordinary skill would find it obvious to combine the teachings of Dunn and Long to obtain a DNA-to-music system having both melody and harmony generation. The motivation for making this combination is the Western music has employed harmony and melody to achieve desired emotional expression for hundreds of years. Regarding claims 2 and 9, Dunn discloses the use of codons. As stated supra, by listening to Dunn's music, harmony is used and is synchronized to the codon sequence (see page 2, paragraph 5). Regarding claims 3 – 5 and 10 – 12, Dunn shows that the DNA is used to generate music from the Internet (i.e., music must be in an audio waveform to be heard, and must be from a command sequence to be played on a computer). Regarding claims 6 and 13, Dunn discloses the use of determining the chemical property (see first sentence on page 2) of an amino acid to perform music. As stated supra, the music includes harmony. (Note: The Examiner broadly defines harmony as two or more notes played simultaneously.) Regarding claim 7, as best as can be understood (see §112 rejection discussed supra), generating a melody based on amino acid is old and well-known (as taught by both Dunn and Long), and generating a melody based on harmony would certainly be within the scope of one of ordinary skill (this is the technique used throughout the era of common practice). Regarding claims 20 and 21, the use of music in greeting cards and

e-cards is well-known, and Official Notice is hereby taken. To use any music, including that generated by DNA, amino acids, etc., would have been a choice easily made by one of ordinary skill. Regarding claims 22 and 24, Long discloses the use of homology modeling for recognizing differences in similar protein structures (page 15, lines 5 – 8), use of this feature to “diagnose” is an intended use, within the scope of one of ordinary skill.

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. “Gene Sequence Analysis with Auditory Display” by Nobuo Munakata (<http://www.toshima.ne.jp/~edogiku/GSAwAD.html>) meets the limitations of Applicant's claimed invention, that is, converting DNA amino acids into music via MIDI instruments. “Welsh software turns DNA into music” discloses Applicant's invention. Bryden et al. (2005/0115381) discloses making music from DNA sequences.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David S. Warren whose telephone number is 571-272-2076. The examiner can normally be reached on M-F, 9:30 A.M. to 6:30 P.M..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Martin can be reached on 571-272-2800 ext 37. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

dsw



MARLON T. FLETCHER
PRIMARY EXAMINER